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According to the characteristics of the lesion, chronic nasal catarrh has been subdivided into three varieties—namely, (1) the simple, (2) the hypertrophic, and (3) the atrophic. Examples of each variety are seen in Vermont. In frequency of occurrence the hypertrophic form stands first, the simple second, and the atrophic form rarely presents for treatment. By the hypertrophic form is understood that variety of chronic nasal catarrh in which the lining of the nasal passages is chronically thickened, whether that thickening be due chiefly to actual hypertrophy, or chiefly to chronic engorgement of the blood-vessels of the submucous connective tissue. In either case there is true hyperplasia, but it is more marked in the one than in the other. Probably eighty per cent. of all the cases of nasal catarrh that I have seen in this climate have been examples of the hypertrophic variety, in which the most prominent feature of the lesion was chronic engorgement of the submucous blood-vessels of the inferior and middle turbinated bodies. The morbid process extended uniformly over the turbinated bone, or it was more marked over the anterior

extremity of the inferior turbinated bone, or, still less frequently, it was circumscribed as a posterior turbinated hypertrophy.

In more than fifty per cent. of all cases there was deformity of the septum. Three varieties of such deformity have been observed: 1. A more or less conical tumor or outgrowth springing from a broad base at the junction of the vomer with the triangular cartilage. Section of these outgrowths revealed a structure chiefly cartilaginous, but presenting spiculæ of bone in their center, near the base. The septum in the opposite meatus was in a normal condition, and was not deflected from the median line. This variety of deformity is very common. The growth often attains sufficient size to seriously interfere with the function of the affected side. 2. Bony outgrowths or ridges running antero-posteriorly along the line of junction of the vomer and superior maxillary bones. The septum opposite the base of these ridges sometimes presented a slight depression, which never corresponded in depth to the height of the ridge. These bony outgrowths often obstructed nasal respiration. 3. True deflection of the cartilaginous or bony septum. Deflections in curves from above downward, or from before backward, have been observed. The latter are more apt than the former to give symptoms. These deformities of the septum exist in conjunction with the three varieties of chronic catarrh.

The climatic conditions favor the development of nasal and laryngeal catarrhs. Sudden and great changes of temperature occur both in winter and in summer; cold and damp winds prevail from November to May; in one half of the year pedestrians are exposed to the effects of cold mud or melting snow; the heat of summer is often excessive, and in that season the country roads and the village streets are very dusty. Moreover, acute and chronic coryza are

either not treated at all, or they are insufficiently treated. Thus the conjoined influences of climate and professional indifference condemn the inhabitants of this section to endure the annoyance and suffering incident to chronic inflammations of the upper respiratory tract. Except in syphilitic or in strumous subjects, chronic nasal catarrh in this climate never depends upon a dyscrasia of the blood.

The most prominent symptom of simple chronic catarrh is increased secretion from the nose. The discharge is a thin mucus, or it is muco-purulent. Such patients have frequent attacks of acute coryza, which are caused by the slightest imprudence or exposure.

In hypertrophic catarrh other symptoms are added, the most annoying of which is difficulty in breathing through the nose. In some cases nasal respiration is completely obstructed. In other cases the patient can breathe through only one nostril at a time, for the changing circulation in the engorged turbinated bodies occludes, alternately, first one nostril and then the other. The presence of an outgrowth on the septum will interfere permanently with the function of the side affected. In the mildest cases the patient can breathe through his nose, but he is conscious that his nose is never very clear. The second set of cases are those commonly observed in this section.

Dull frontal headache occurs in nearly all cases of hypertrophic catarrh. Some patients complain of confusion of the intellectual faculties and impairment of memory, which they attribute to their nasal trouble. When the hypertrophy occludes the nasal passages, the patient's condition of both mind and body is distressing. Epistaxis occurs in many cases. The hæmorrhage, although usually trifling, is very annoying. Often patients are distressed by recurring paroxysms of sneezing.

The symptom of atrophic catarrh which the patients

are most anxious about is the offensive odor imparted to their breath by the decomposing secretions. But, as I have already stated, such cases are not common in Vermont. The complications occurring in a large percentage of the cases, and due in a great measure to the previous existence of nasal inflammation, are post-nasal catarrh, inflammation of the Eustachian tubes and middle ear, pharyngitis, and laryngitis. Hypertrophic nasal catarrh is also a predisposing cause of acute bronchitis. I have observed in many instances that patients who had formerly suffered from frequent bronchial colds were very much less liable to such attacks after I had cured their nasal trouble.

The diagnosis of catarrh must be made by rhinoscopic examination. Cases are observed occasionally in which there is no history of catarrh, but in which rhinoscopic examination reveals marked engorgement of the turbinated bodies. Simple and atrophic catarrh present the usual rhinoscopic appearances. In the hypertrophic form the characteristics of the process may be determined by spraying the parts with a weak solution of cocaine. The walls of the blood-vessels contract under the influence of that drug, and the degree of true hyperplasia, as compared with the degree of engorgement of the submucous blood-vessels, is revealed. All parts of the nasal passages are thus more easily inspected, and one is therefore less likely to overlook the existence of deformities of the septum, of nasal polypi, etc. Cocaine facilitates the diagnosis very much.

The treatment which has given the best results in my hands is twofold—hygienic and local. The hygienic treatment consists in a cold sponge-bath over the arms and trunk every morning. Patients begin with tepid water, but they are soon able to bathe in water as it comes from the hydrant. In those whose muscles are weak, calisthenic exercises are added. The patient's feet are warmly clothed and kept

dry. The practice of muffling the neck, except while riding in cold weather, is discouraged. Removal of wraps while sitting in a warm room is of course insisted upon. This system is an old one, but it is one of great importance to those who have a predisposition to catarrhal inflammations of the respiratory tract.

The local treatment of simple chronic catarrh consists in the use of cleansing and astringent sprays and pigments. Atrophic catarrh calls for active treatment, in which cleansing fluids, nitrate of silver, the galvano-cautery, and cotton tampons play the chief part. Cleansing and astringent sprays are resorted to in the management of hypertrophic catarrh, but they are not sufficient to effect a cure. The hypertrophy must be overcome and free nasal respiration must be permanently re-established before the case will recover. Cocaine will restore nasal respiration, but its effect is transient, its use is followed by increased congestion, and it produces a deleterious effect on the system, if continued for a considerable length of time.

To remove posterior hypertrophies, the cold wire snare is the means preferred. Hypertrophies not located near the Eustachian tubes, in which the chief feature is engorgement of the blood-vessels, are best treated with the galvano-cautery knife. By using cocaine freely before the operation, the hot knife may be used without causing pain. Patients very seldom complain of the operation. It is better to repeat the sittings than to burn extensively at one time. If the septum is touched by the knife during the operation, adhesion between it and the turbinated body is pretty certain to follow. And a cauterizing operation should not be done in both nostrils on the same day. No reaction, save swelling of the burned area, has ever been observed in my cases. The patients go about their business as usual. The wound heals in from one to two weeks. The burnings are

repeated from time to time until the engorgement is cured. True hyperplasia, whether posterior or not, is best treated with the cold snare. Cleansing and antiseptic sprays and pigments are used throughout the treatment; and any co-existing inflammation of the ear, pharynx, or larynx is treated in the usual way at the same time.

Deformities of the septum (varieties 1 and 2), when they interfere with the function of the nose, are removed with the saw or with nasal trephines and drills propelled by an electric motor. Cocaine anæsthesia will render these operations almost painless. The hæmorrhage is never excessive and is easily checked. No reaction has ever followed such operations in my experience. The patients have attended to their business as usual, annoyed, perhaps, during the day of operation by slight oozing through the tampon. The results of these operations are always satisfactory to the patients.

The third variety of deformity of the septum is treated by a different surgical procedure.

The prognosis of chronic nasal catarrh, unless proper treatment is carried out, is unfavorable. The symptoms are most annoying during the colder months, but the disease is never cured by the milder atmospheric conditions of summer. And patients who have endeavored to find relief from their nasal affection in a change of climate usually relapse soon after their return to Vermont. When hypertrophy exists, and when the septum is deformed, nothing but surgical interference can cure the patient. Nearly every case of simple and hypertrophic nasal catarrh is curable by the measures detailed above, even in this unfavorable climate, and relapses are infrequent. The atrophic variety is incurable, but the severity of its symptoms may be mitigated by treatment.